

What is methicillin-resistant *Staphylococcus aureus* (MRSA)?

Staphylococcus aureus ("staph") is a common type of bacteria (germ) that is often found on the skin and in the nose of healthy people. It can also grow in wounds or other sites in the body, sometimes causing an infection. Antibiotics are drugs used to treat infections caused by bacteria. Sometimes bacteria can change so that particular drugs will no longer kill the germs. When this happens, these germs are called "antibiotic resistant". Over time, staph bacteria have become difficult to treat with antibiotics related to penicillin (e.g., methicillin, amoxicillin). These resistant forms of staph are called methicillin-resistant *Staphylococcus aureus*, or MRSA. The illnesses that MRSA causes are similar to those caused by other staph; the difference is in how they are treated.

Who gets MRSA infection?

Just like normal staph bacteria, MRSA normally does not cause disease unless it enters an opening in the skin. Some people are at higher risk for carrying MRSA or becoming infected with this type of staph. Serious MRSA infections more often occur in people in hospitals and other types of healthcare facilities. MRSA infection can also occur outside healthcare settings in people who receive multiple antibiotics, as well as in people who have close contact with a person carrying the germ or by touching objects contaminated with MRSA (e.g., towels, athletic equipment, sauna benches, bandages, etc.).

How are MRSA and other types of staph bacteria spread?

Staph bacteria (including MRSA) are most often spread by direct person-to-person contact, usually on hands. Staph may also be spread by contact with contaminated items (e.g., towels, razors) or environmental surfaces (e.g., athletic benches or mats).

What are the symptoms of MRSA infection?

Many people carry staph bacteria on their skin or in their bodies without any symptoms. This is called being "colonized". A person may be colonized for a long time before getting sick or may never get sick.

Symptoms of a MRSA or other staph infection depend on where the infection is located. Infections of the skin are the most common, and can cause redness, warmth, pus, and a wound that does not heal. Your doctor may refer to these infections as cellulitis, boils, furuncles, pustules, folliculitis, impetigo, or abscesses. A MRSA skin infection may be mistaken for a spider or insect bite. More serious MRSA infections can also develop in the blood, bladder, lungs, or other sites. Symptoms there will depend on the site of infection, but include fever and pain at the site of infection.

How is MRSA diagnosed?

Usually, a sample will be obtained from the infection site (e.g., the skin, blood, urine, or sputum) and sent to the laboratory for testing. If staph is isolated, more laboratory tests are needed to determine which antibiotics will be effective for treating the infection. If the bacteria are resistant to certain antibiotics (including oxacillin, penicillin, and amoxicillin), a diagnosis of MRSA is made.

What is the treatment for MRSA and other staph infections?

Many staph skin infections, including those caused by MRSA, can be treated with appropriate wound care at home by keeping them clean and covering them with bandages. Additional treatment from a healthcare provider is needed if wounds are not healing properly or are draining (e.g., drainage of pus with warm compresses or incision). Antibiotics (not related to penicillin) may also be used. If antibiotics are prescribed by your healthcare provider, it is very important to finish taking all the pills and to call your doctor if the infection does not get better. More serious infections, like those in the blood, or surgical wound infections, may require hospitalization and/or the use of intravenous (IV) antibiotics.

Except in special circumstances, no treatment is needed for people who carry MRSA but do not have any symptoms.

What can be done to prevent the spread of MRSA and other staph infections?

To prevent the spread of MRSA and other staph infections:

- Regularly wash hands with soap and water or use an alcohol-based hand sanitizer (if hands are not visibly soiled) to keep them clean.
- Keep cuts/wounds clean and covered until healed. Watch for signs of infection, such as redness, warmth, and swelling. If a sore or cut becomes red, oozes, causes pain, or isn't healing, see a doctor.
- Clean your hands thoroughly after changing bandages or touching wounds. Put used bandages in the trash.
- Avoid sharing personal items such as towels, sports equipment, razors, etc.
- If prescribed antibiotics, take all the pills, even if you feel better before they are all gone.
- Don't insist on antibiotics for treating colds or other infections caused by viruses.
- If you currently have MRSA or had MRSA in the past, tell any healthcare providers who treat you. There are special things that can be done to prevent the spread of MRSA in healthcare settings.

What should I do if I think I have an infection caused by MRSA or another type of staph bacteria?

See your healthcare provider. Your doctor might recommend laboratory testing to confirm whether you have MRSA and to determine how to treat it.

How can I get more information about MRSA infection?

- If you have concerns about MRSA, contact your healthcare provider.
- Call your local health department. A directory of local health departments is located at <http://www.vdh.virginia.gov/local-health-districts/>.
- Visit the Centers for Disease Control and Prevention website at <http://www.cdc.gov/mrsa/>.